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the international boundary in the treaty by which it was defined. "The frontier line shall run \* \* \* along the most elevated crests of said Cordilleras that may divide the waters, and shall pass between the slopes which descend one side and the other." The Argentines, therefore, claim that the line should follow the crest of the Andes, crossing where necessary the courses of those rivers which flow through the range; while the Chileans claim that it should follow the water parting, even when that would lead the line far out upon the open pampas many miles east of the mountains. The fact that mountain ranges are sometimes cut through by the deep gorges of through-going, transverse rivers was well known as a general physiographic occurrence at the time when the boundary treaty was drawn up (1881), though the numerous specific instances of this kind in the mountain range in question had then been hardly recognized. In spite of this want of local information, it does not seem unreasonable to blame the diplomats who drew up the boundary treaty for being so careless with respect to complications of known possibility. They might have learned a profitable lesson from the practice of patent lawyers, who make so thorough a defense of a new invention. The only disturbing complications mentioned in the treaty were those arising in valleys formed by 'bifurcation of the Cordillera' where 'the watershed may not be apparent.'

The maps, plates and text of the 'Report' give many details concerning the crest line of the Andes, the deep gorges by which the mountains are cut through, and the topography, frequently morainic, of the pampas around the headwaters of the through-flowing rivers. These features have been described in abstract in certain of the European geographical journals, where at least one writer explains the transverse gorges by the capture of eastern drainage areas by the normal retrogressive erosion of streams on the western mountain slope. It is difficult to accept this explanation, because it is not shown that the western streams have enjoyed any advantage, such as should have led them to acquire so much drainage from their eastern competitors at so

early a stage of mountain dissection as that now reached by the Andes. Hatcher has suggested, on the basis of his own observations, that the peculiar river courses result from relatively recent deformation of the region. The aid that glacial erosion may have given does not seem to have been considered, although the possible sawing down of divides by overflowing glaciers has elsewhere been shown to be an important process in heavily glaciated regions.

#### MAPS OF FAROE ISLANDS.

THE Danish General Staff has published fifty-three sheets of an elaborate topographical map of what we tautologically call the Faroe Islands. The map is printed in four colors on a scale of 1:20,000, with contours every ten (sometimes every five) meters. Only the skeleton of what was originally a lava plateau now remains. The larger islands are divided into separate uplands by broadly open, trough-shaped, through-going valleys that descend with gentle slope in both directions from a low valley-floor divide. The sounds by which the islands are separated seem to be only submerged valleys of the same kind. Great cirques, from half a mile to a mile across, open from the main valleys. The strong slopes of the valleys and cirques are notably smooth, unravined by the numerous streams that descend from the uplands; and hence it may be concluded that much of the dissection of the lava plateau has been accomplished by ice action. If so, it is here, as elsewhere, unsafe to infer postglacial submergence simply because some of the valleys are drowned; for if glaciers can erode at all they can certainly erode to a significant depth beneath sea level. The sea-cut cliffs are very bold on the western coast; those of Strömö are 500 or 600 meters high at a distance of only 200 or 300 meters inland from the shore line.

W. M. DAVIS.

#### THE MAGNETIC SURVEY OF LOUISIANA.

ARRANGEMENTS have just been completed between Superintendent Tittmann and the State Geologist, Professor G. D. Harris, for making a detailed magnetic survey of Louisiana under

the joint auspices of the State Geological Survey and the Coast and Geodetic Survey. Professor Harris is arranging to have the field work begin soon after the Christmas holidays. It will be the endeavor to complete the greater part of the work by June 1, 1903. Mr. Edwin Smith will represent the Coast and Geodetic Survey on this important work. Louisiana is the third state within recent years to avail itself of the unrivaled facilities and instrumental equipment of the Coast and Geodetic Survey for rapid and successful magnetic work.

Dr. L. A. Bauer, during his recent inspection tour of two months covering the region from the north shore of Lake Superior to the southern part of Texas, besides visiting the various magnetic parties working in that region, determined the dip at a number of stations with two totally different instruments, the one a French dip circle and the other a Lloyd-Creak dip circle primarily intended for observations at sea. With the latter dip circle he likewise determined the total magnetic intensity, and multiplying the value thus obtained by the cosine of the dip the horizontal intensity was obtained. Next the horizontal intensity was observed directly with a French magnetometer. With the same instruments comparisons were made with the instruments of each party visited. Thus an interesting series of observations has resulted serving to test the constancy of dip circle standardizations for the entire range of dip embraced in the United States, and giving the means of determining the relative accuracy of field intensity determinations by two totally different methods and with two greatly differing instruments.

The Coast and Geodetic Survey is preparing to make magnetic observations (declination, dip and intensity) on board the *Blake*, an entirely wooden vessel, which is to sail for Porto Rico soon after January 1. The necessary instruments have been secured and are now being installed in the ship. The dip circle—a greatly improved form of the Fox dip circle, known as the Lloyd-Creak dip circle, with which the dip and total intensity observations will be made, is similar to the

instruments supplied to the English Antarctic ship, the *Discovery*, and to the German Antarctic ship, the *Gauss*.

#### THE RHODES SCHOLARSHIPS.\*

ARRANGEMENTS are being made for the Rhodes scholars to take up their residence in Oxford at the earliest possible date. Mr. G. R. Parkin, LL.D., Principal of Upper Canada College, Toronto, the organizing agent for the trustees of the Rhodes scholarships, is on a visit to Oxford on behalf of the various countries interested, and, after consultation with the university and college authorities, will frame for the approval of the trustees a scheme for the election of the scholars. As the bequest of Mr. Rhodes suggests that the scholars shall come into residence at the various colleges and shall pursue a three year's course, it is all important that a clear understanding of the attitude of the university and of the individual colleges towards the scholars thus to be elected should be ascertained as a necessary preliminary to Mr. Parkin's work abroad. This is the object of his visit to Oxford. Acting on the advice of the vice-chancellor and a committee of the Hebdomadal Council, Mr. Parkin addressed a series of questions to various heads of colleges in order that the matter might be formally brought under the consideration of the respective societies. The questions were as under:

1. Is your college willing to receive each year's number of the Rhodes scholars, and, if so, how many?
2. What are the conditions of entrance upon which your college would insist? Would they necessarily include any examination of your own?
3. Would you be able to give any Rhodes scholars accepted by you rooms in the college buildings from the time of their entrance and for how long?
4. At what date in each year would you require notification of the election of scholars in order that rooms may be assigned them and arrangements made for their entrance.
5. Would you wish scholars accepted by you to come under ordinary undergraduate conditions as to age and attainments, or would you prefer men prepared to take advanced or post-graduate work?

\* From the London *Times*.